

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: GUERIN-MARCHAND, Claudine
DRUILHE, Pierre
- (ii) TITLE OF INVENTION: PEPTIDE SEQUENCES SPECIFIC FOR THE
HEPATIC STAGES OF P. FALCIPARUM BEARING EPITOPES CAPABLE
OF STIMULATING THE T LYMPHOCYTES
- (iii) NUMBER OF SEQUENCES: 46
- (iv) CORRESPONDENCE ADDRESS:
(A) ADDRESSEE: Burns, Doane, Swecker & Mathis
(B) STREET: P.O. Box 1404
(C) CITY: Alexandria
(D) STATE: Virginia
(E) COUNTRY: United States
(F) ZIP: 22313-1404
- (v) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30
- (vi) CURRENT APPLICATION DATA:
(A) APPLICATION NUMBER: US 08/462,625
(B) FILING DATE: 05-JUN-1995
(C) CLASSIFICATION:
- (vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: US 08/098,327
(B) FILING DATE: 24-NOV-1993
- (viii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: FR 91 01286
(B) FILING DATE: 05-FEB-1991
- (ix) ATTORNEY/AGENT INFORMATION:
(A) NAME: McGowan, Malcolm K.
(B) REGISTRATION NUMBER: 39,300
(C) REFERENCE/DOCKET NUMBER: 010830-078
- (x) TELECOMMUNICATION INFORMATION:
(A) TELEPHONE: (703) 836-6620
(B) TELEFAX: (703) 836-2021

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 8

(D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is Glu or Gly."

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Leu Ala Lys Glu Lys Leu Gln Xaa Gln Gln Ser Asp Leu Glu Gln Glu
1 5 10 15

Arg

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 1

(D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is Ser or Arg."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 6

(D) OTHER INFORMATION: /note= "Amino Acid 6 wherein Xaa is Glu or Asp."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 8

(D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is Arg or Leu."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 15

(D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa is Glu or Gly."

(x) PUBLICATION INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Gln

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) **FEATURE:**

- (A) NAME/KEY: Peptide
(B) LOCATION: 2
(D) OTHER INFORMATION: /note= "Amino Acid 2 wherein Xaa is Ser or Arg."

(ix) **FEATURE:**

- (A) NAME/KEY: Peptide
(B) LOCATION: 7
(D) OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is
Glu or Asp."

(ix) **FEATURE:**

- (A) NAME/KEY: Peptide
(B) LOCATION: 9
(D) OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is
Arg or Leu."

(ix) **FEATURE:**

- (A) NAME/KEY: Peptide
(B) LOCATION: 16
(D) OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa
is Glu or Gly."

(X) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884
(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Gln

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 3
- (D) OTHER INFORMATION: /note= "Amino Acid 3 wherein Xaa is Ser or Arg."

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 8
- (D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is Glu or Asp."

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 10
- (D) OTHER INFORMATION: /note= "Amino Acid 10 wherein Xaa is Arg or Leu."

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 17
- (D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa is Glu or Gly."

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln
 1 5 10 15

Xaa

(2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 1

T06T40" 44 900

(D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is Glu or Gly."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 4

(D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is Ser or Arg."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 9

(D) OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is Glu or Asp."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 11

(D) OTHER INFORMATION: /note= "Amino Acid 11 wherein Xaa is Arg or Leu."

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Xaa	Gln	Gln	Xaa	Asp	Leu	Glu	Gln	Xaa	Arg	Xaa	Ala	Lys	Glu	Lys	Leu
1				5					10					15	
Gln															

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 2

(D) OTHER INFORMATION: /note= "Amino Acid 2 wherein Xaa is Glu or Gly."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 5

(D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is Ser or Arg."

(ix) FEATURE:

- (ix) **FEATURE:**

- (x) PUBLICATION INFORMATION:

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Leu

(i) SEQUENCE CHARACTERISTICS:

- (ii) MOLECULE TYPE: peptide

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(A) NAME/KEY: Peptide
(B) LOCATION: 3
```

- (ix) **FEATURE:**

- (ix) FEATURE:**

- ```
(A) NAME/KEY: Peptide
(B) LOCATION: 11
```

- (ix) FEATURE:

- (A) NAME/KEY: Peptide  
(B) LOCATION: 13

- (D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa is Arg or Leu."

(H) DOCUMENT NUMBER: WO 92/13884  
(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu  
1 5 10 15  
Lys

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

(ix) **FEATURE:**

- (A) NAME/KEY: Peptide  
(B) LOCATION: 4  
(D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is  
Glu or Gly."

(ix) **FEATURE:**

- (A) NAME/KEY: Peptide  
(B) LOCATION: 7  
(D) OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is Ser or Arg."

(ix) **FEATURE:**

- (A) NAME/KEY: Peptide  
(B) LOCATION: 12  
(D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa  
is Glu or Asp."

(ix) **FEATURE:**

- (A) NAME/KEY: Peptide  
(B) LOCATION: 14  
(D) OTHER INFORMATION: /note= "Amino Acid 14 wherein Xaa  
is Arg or Leu."

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884  
(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys  
1 5 10 15  
Glu

## (2) INFORMATION FOR SEQ ID NO:9:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

## (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 5
- (D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is Glu or Gly."

## (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 8
- (D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is Ser or Arg."

## (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 13
- (D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa is Glu or Asp."

## (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 15
- (D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa is Arg or Leu."

## (x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala  
 1                      5                      10                      15

Lys

## (2) INFORMATION FOR SEQ ID NO:10:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

## (ix) FEATURE:



- (ix) FEATURE:

- (ix) **FEATURE:**

- (ix) **FEATURE:**

- (x) PUBLICATION INFORMATION:

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:

- (ii) MOLECULE TYPE: peptide

- (ix) **FEATURE:**

- (ix) FEATURE:

- (A) NAME/KEY: Peptide  
(B) LOCATION: 10  
(D) OTHER INFORMATION: /note= "Amino Acid 10 wherein Xaa  
is Ser or Arg."

(D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa  
is Glu or Asp."

(D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa  
is Arg or Leu."

(J) PUBLICATION DATE: 20-AUG-1992

## Xaa

(D) TOPOLOGY: linear

(D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is Arg or Leu."

(D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is  
Glu or Gly."

(D) OTHER INFORMATION: /note= "Amino Acid 11 wherein Xaa  
is Ser or Arg."

(D) OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa  
is Glu or Asp."

## (x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa  
 1                      5                      10                      15

Arg

## (2) INFORMATION FOR SEQ ID NO:13:

## (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 2

(D) OTHER INFORMATION: /note= "Amino Acid 2 wherein Xaa is Arg or Leu."

## (ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 9

(D) OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is Glu or Gly."

## (ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 12

(D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa is Ser or Arg."

## (ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 17

(D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa is Glu or Asp."

## (x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln  
 1                      5                      10                      15

Xaa

## (2) INFORMATION FOR SEQ ID NO:14:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 1
- (D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is Glu or Asp."

## (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 3
- (D) OTHER INFORMATION: /note= "Amino Acid 3 wherein Xaa is Arg or Leu."

## (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 10
- (D) OTHER INFORMATION: /note= "Amino Acid 10 wherein Xaa is Glu or Gly."

## (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 13
- (D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa is Ser or Arg."

## (x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu  
 1                      5                      10                      15  
 Gln

## (2) INFORMATION FOR SEQ ID NO:15:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (ix) FEATURE:

- (ix) **FEATURE:**

- (ix) FEATURE:**

- (ix) FEATURE:**

- (x) PUBLICATION INFORMATION:

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:

- (ii) MOLECULE TYPE: peptide

- (ix) **FEATURE:**

- (A) NAME/KEY: Peptide  
(B) LOCATION: 3  
(D) OTHER INFORMATION: /note= "Amino Acid 3 wherein Xaa is  
Glu or Asp."

- (ix) **FEATURE:**

- ```
(A) NAME/KEY: Peptide
(B) LOCATION: 5
(D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is
    Arg or Leu."
```

(D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa
is Glu or Gly."

(D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa
is Ser or Arg."

(J) PUBLICATION DATE: 20-AUG-1992

Leu

(D) TOPOLOGY: linear

(D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is
Glu or Asp."

(D) OTHER INFORMATION: /note= "Amino Acid 6 wherein Xaa is Arg or Leu."

(D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa
is Glu or Gly."

(D) OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa
is Ser or Arg."

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa
 1 5 10 15

Asp

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Peptide
 (B) LOCATION: 5
 (D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is
 Glu or Asp."

(ix) FEATURE:

(A) NAME/KEY: Peptide
 (B) LOCATION: 7
 (D) OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is
 Arg or Leu."

(ix) FEATURE:

(A) NAME/KEY: Peptide
 (B) LOCATION: 14
 (D) OTHER INFORMATION: /note= "Amino Acid 14 wherein Xaa
 is Glu or Gly."

(ix) FEATURE:

(A) NAME/KEY: Peptide
 (B) LOCATION: 17
 (D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa
 is Ser or Arg."

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln
 1 5 10 15

Xaa

TOGETHER THE 2550

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 107 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His Gly
 1 5 10 15
 Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro Ala Ile
 20 25 30
 Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr Ile Pro His Gln Ser
 35 40 45
 Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg Asp Ser Lys Glu Ile
 50 55 60
 Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile Thr Thr Asn Val Glu
 65 70 75 80
 Gly Arg Arg Asp Ile His Lys Gly His Leu Glu Glu Lys Lys Asp Gly
 85 90 95
 Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser
 100 105

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 117 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Leu Gln Glu Gln Gln Arg Asp Leu Glu Gln Arg Lys Ala Asp Thr Lys
 1 5 10 15

Lys Asn Leu Glu Arg Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp
 20 25 30
 Leu Tyr Gly Arg Leu Glu Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn
 35 40 45
 Glu Arg Gly Tyr Tyr Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn
 50 55 60
 Arg Gly Asn Ser Arg Asp Ser Lys Glu Ile Ser Ile Ile Glu Lys Thr
 65 70 75 80
 Asn Arg Glu Ser Ile Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His
 85 90 95
 Lys Gly His Leu Glu Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln
 100 105 110
 Lys Glu Asp Lys Ser
 115

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His Gly Asp Ile Leu
 1 5 10 15
 Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro
 20 25

(2) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Arg Asp Leu Glu
 1 5 10 15
 Gln Arg Lys Ala Asp Thr Lys Lys
 20

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Asn Ser Arg Asp Ser Lys Glu Ile Ser Ile Ile Glu Lys Thr Asn Arg
 1 5 10 15
 Glu Ser Ile Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His Lys
 20 25 30

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 151 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Arg Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly
 1 5 10 15
 Glu Val Lys Glu Asn Ile Leu Glu Glu Ser Gln Val Asn Asp Asp Ile
 20 25 30
 Phe Asn Ser Leu Val Lys Ser Val Gln Gln Glu Gln Gln His Asn Val
 35 40 45

09037344
 105110
 105110

Glu Glu Lys Val Glu Glu Ser Val Glu Glu Asn Asp Glu Glu Ser Val
50 55 60

Glu Glu Asn Val Glu Glu Asn Val Glu Glu Asn Asp Asp Gly Ser Val
65 70 75 80

Ala Ser Ser Val Glu Glu Ser Ile Ala Ser Ser Val Asp Glu Ser Ile
85 90 95

Asp Ser Ser Ile Glu Glu Asn Val Ala Pro Thr Val Glu Glu Ile Val
100 105 110

Ala Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Lys Cys
115 120 125

Ala Pro Ser Val Glu Glu Ser Val Ala Pro Ser Val Glu Glu Ser Val
130 135 140

Ala Glu Met Leu Lys Glu Arg
145 150

(2) INFORMATION FOR SEQ ID NO:25:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 47 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

- (x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Arg Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly
1 5 10 15

Glu Val Lys Glu Asn Ile Leu Glu Glu Ser Gln Val Asn Asp Asp Ile
20 25 30

Phe Asn Ser Leu Val Lys Ser Val Gln Gln Glu Gln Gln His Asn
35 40 45

(2) INFORMATION FOR SEQ ID NO:26:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 26 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly Glu
 1 5 10 15

Val Lys Glu Asn Ile Leu Glu Glu Ser Gln
 20 25

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 27 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Leu Glu Glu Ser Gln Val Asn Asp Asp Ile Phe Ser Asn Ser Leu Val
 1 5 10 15

Lys Ser Val Gln Glu Gln Gln His Asn Val
 20 25

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 27 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Val Glu Lys Cys Ala Pro Ser Val Glu Glu Ser Val Ala Pro Ser Val
 1 5 10 15

Glu Glu Ser Val Ala Glu Met Leu Lys Glu Arg
 20 25

09837344
 041900
 100100

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

TTGTTCTAGA TCGCTTT

17

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

AAAGAAGATA AATCT

15

(2) INFORMATION FOR SEQ ID NO:31: (Fg)

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 316 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln
 1 5 10 15

Gln	Ser	Asp	Leu	Glu	Gln	Asp	Arg	Leu	Ala	Lys	Glu	Lys	Leu	Gln	Glu	20	25	30
Gln	Gln	Ser	Asp	Leu	Glu	Gln	Glu	Arg	Arg	Ala	Lys	Glu	Lys	Leu	Gln	35	40	45
Glu	Gln	Gln	Ser	Asp	Leu	Glu	Gln	Glu	Arg	Arg	Ala	Lys	Glu	Lys	Leu	50	55	60
Gln	Glu	Gln	Gln	Ser	Asp	Leu	Glu	Gln	Glu	Arg	Arg	Ala	Lys	Glu	Lys	65	70	80
Leu	Gln	Glu	Gln	Gln	Ser	Asp	Leu	Glu	Gln	Asp	Arg	Leu	Ala	Lys	Glu	85	90	95
Lys	Leu	Gln	Glu	Gln	Gln	Ser	Asp	Leu	Glu	Gln	Glu	Arg	Arg	Ala	Lys	100	105	110
Glu	Lys	Leu	Gln	Glu	Gln	Gln	Ser	Asp	Leu	Glu	Gln	Glu	Arg	Arg	Ala	115	120	125
Lys	Glu	Lys	Leu	Gln	Glu	Gln	Gln	Ser	Asp	Leu	Glu	Gln	Glu	Arg	Arg	130	135	140
Ala	Lys	Glu	Lys	Leu	Gln	Glu	Gln	Gln	Ser	Asp	Leu	Glu	Gln	Glu	Arg	145	150	160
Arg	Ala	Lys	Glu	Lys	Leu	Gln	Glu	Gln	Gln	Ser	Asp	Leu	Glu	Gln	Glu	165	170	175
Arg	Arg	Ala	Lys	Glu	Lys	Leu	Gln	Glu	Gln	Gln	Ser	Asp	Leu	Glu	Gln	180	185	190
Glu	Arg	Arg	Ala	Lys	Glu	Lys	Leu	Gln	Glu	Gln	Gln	Arg	Asp	Leu	Glu	195	200	205
Gln	Arg	Lys	Ala	Asp	Thr	Lys	Lys	Asn	Leu	Glu	Arg	Lys	Lys	Glu	His	210	215	220
Gly	Asp	Ile	Leu	Ala	Glu	Asp	Leu	Tyr	Gly	Arg	Leu	Glu	Ile	Pro	Ala	225	230	240
Ile	Glu	Leu	Pro	Ser	Glu	Asn	Glu	Arg	Gly	Tyr	Tyr	Ile	Pro	His	Gln	245	250	255
Ser	Ser	Leu	Pro	Gln	Asp	Asn	Arg	Gly	Asn	Ser	Arg	Asp	Ser	Lys	Glu	260	265	270
Ile	Ser	Ile	Ile	Glu	Lys	Thr	Asn	Arg	Glu	Ser	Ile	Thr	Thr	Asn	Val	275	280	285
Glu	Gly	Arg	Arg	Asp	Ile	His	Lys	Gly	His	Leu	Glu	Glu	Lys	Lys	Asp	290	295	300
Gly	Ser	Ile	Lys	Pro	Glu	Gln	Lys	Glu	Asp	Lys	Ser					305	310	315

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 950 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

AAAGCGATCT AGAACAAGAG AGACGTGCTA AAGAAAAGTT GCAAGAACAA CAAAGCGATT	60
TAGAACAAGA TAGACTTGCT AAAGAAAAGT TACAAGAGCA GCAAAGCGAT TTAGAACAAG	120
AGAGACTTGC TAAAGAAAAG TTGCAAGAAC AACAAAGCGA TCTAGAACAA GAGAGACGTG	180
CTAAAGAAAA GTTGCAAGAA CAACAAAGCG ATTTAGAACA AGAGAGACGT GCTAAAGAAA	240
AGTTGCAAGA ACAACAAAGC GATTTAGAAC AAGATAGACT TGCTAAAGAA AAGTTACAAG	300
AGCAGCAAAG CGATTTAGAA CAAGAGAGAC GTGCTAAAGA AAAGTTGCAA GAACAACAAA	360
GCGATTTAGA ACAAGAGAGA CGTGCTAAAG AAAAGTTGCA AGAACAACAA AGCGATTTAG	420
AACAAGAGAG ACTTGCTAAA GAAAAGTTGC AAGAACAACA AAGCGATTTA GAACAAGAGA	480
GACGTGCTAA AGAAAAGTTG CAAGAACAAC AAAGCGATTT AGAACAAGAG AGACGTGCTA	540
AAGAAAAGTT GCAAGAACAA CAAAGCGATT TAGAACAAGA GAGACGTGCT AAAGAAAAGT	600
TGCAAGAGCA GCAAAGAGAT TTAGAACAAA GGAAGGCTGA TACGAAAAAA AATTTAGAAA	660
GAAAAAAGGA ACATGGAGAT ATATTAGCAG AGGATTTATA TGGTCGTTTA GAAATACCAG	720
CTATAGAACT TCCATCAGAA AATGAACGTG GATATTATAT ACCACATCAA TCTTCTTTAC	780
CTCAGGACAA CAGAGGGAAT AGTAGAGATT CCAAGGAAAT ATCTATAATA GAAAAACAA	840
ATAGAGAATC TATTACAACA AATGTTGAAG GACGAAGGGA TATACATAAA GGACATCTTG	900
AAGAAAAGAA AGATGGTTCA ATAAACCAG AACAAAAAGA AGATAAATCT	950

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 464 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

GAATTCCGTG ATGAACTTTT TAATGAATTA TTAAATAGTG TAGATGTAA TGGAGAAGTA	60
AAAGAAAATA TTTTGGAGGA AAGTCAAGTT AATGACGATA TTTTAAATAG TTTAGTAAAA	120
AGTGTTC AAC AAGAACAACA ACACAATGTT GAAGAAAAG TTGAAGAAAG TGTAGAAGAA	180
AATGACGAAG AAAGTGTAGA AGAAAATGTA GAAGAAAATG TAGAAGAAAA TGACGACGGA	240
AGTGTAGCCT CAAGTGTGTA AGAAAGTATA GCTTCAAGTG TTGATGAAAG TATAGATTCA	300
AGTATTGAAG AAAATGTAGC TCCAAGTGT GAAGAAATCG TAGCTCCAAC TGTTGAAGAA	360
ATTGTAGCTC CAAGTGTGT AGAAAAGTGT GCTCCAAGTG TTGAAGAAAG TGTAGCTCCA	420
AGTGTGAAG AAAGTGTAGC TGAAATGTTG AAGGAAAGGA ATTC	464

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 988 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

AAAGTATACA TCTTCCTTCT TTAATTCTTA AAATGAAACA TATTTTGTAC ATATCATTTT	60
ACTTTATCCT TGTTAATTTA TTGATATTTT ATATAAATGG AAAGATAATA AAGAATTCTG	120
AAAAAGATGA AATCATAAAA TCTAACTTGA GAAGTGGTTC TTCAAATTCT AGGAATCGAA	180
TAAATGAGGA AAATCACGAG AAGAAACACG TTTTATCTCA TAATTCATAT GAGAAAATA	240
AAAATAATGA AAATAATAAA TTTTTCGATA AGGATAAAGA GTTAACGATG TCTAATGTAA	300
AAAATGTGTC ACAAACAAAT TTCAAAGTC TTTTAAGAAA TCTTGGTGTT TCAGAGAATA	360
TATTCCTTAA AGAAAATAAA TTAAATAAGG AAGGGAAATT AATTGAACAC ATAATAAATG	420
ATGATGACGA TAAAAAATAA TATATTAAAG GGCAAGACGA AAACAGACAA GAAGATCTTG	480

AAGAAAAGC AGCTAAAGAA AAGTTACAGG GGCAACAAAG CGATTCAGAA CAAGAGAGAC	540
GTGCTAAAGA AAAGTTGCAA GAACAACAAA GCGATTTAGA ACAAGAGAGA CTTGCTAAAG	600
AAAAGTTGCA AGAACAACAA AGCGATTTAG AACAAGAGAG ACGTGCTAAA GAAAAGTTGC	660
AAGAACAACA AAGCGATTTA GAACAAGAGA GACTTGCTAA AGAAAAGTTG CAAGAACAAC	720
AAAGCGATTT AGAACAAGAG AGACGTGCTA AAGAAAAGTT GCAAGAACAA CAAAGCGATT	780
TAGAACAAGA GAGACGTGCT AAAGAAAAGT TGCAAGAACA ACAAAGCGAT TTAGAACAAG	840
AGAGACTTGC TAAAGAAAAG TTACAAGAGC AGCAAAGCGA TTTAGAACAA GATAGACTTG	900
CTAAAGAAAA GTTGCAAGAA CAACAAAGCG ATTTAGAACA AGAGAGACGT GCTAAAGAAA	960
GGTTGCAAGA ACAACAAAGC GATTTAGA	988

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

ATGAAACATA TT

12

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

AAGCGATTTA GA

12

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 954 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..954

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

ATG AAA CAT ATT TTG TAC ATA TCA TTT TAC TTT ATC CTT GTT AAT TTA	48
Met Lys His Ile Leu Tyr Ile Ser Phe Tyr Phe Ile Leu Val Asn Leu	
5 10 15	
TTG ATA TTT CAT ATA AAT GGA AAG ATA ATA AAG AAT TCT GAA AAA GAT	96
Leu Ile Phe His Ile Asn Gly Lys Ile Ile Lys Asn Ser Glu Lys Asp	
20 25 30	
GAA ATC ATA AAA TCT AAC TTG AGA AGT GGT TCT TCA AAT TCT AGG AAT	144
Glu Ile Ile Lys Ser Asn Leu Arg Ser Gly Ser Ser Asn Ser Arg Asn	
35 40 45	
CGA ATA AAT GAG GAA AAT CAC GAG AAG AAA CAC GTT TTA TCT CAT AAT	192
Arg Ile Asn Glu Glu Asn His Glu Lys Lys His Val Leu Ser His Asn	
50 55 60	
TCA TAT GAG AAA ACT AAA AAT AAT GAA AAT AAT AAA TTT TTC GAT AAG	240
Ser Tyr Glu Lys Thr Lys Asn Asn Glu Asn Asn Lys Phe Phe Asp Lys	
65 70 75 80	
GAT AAA GAG TTA ACG ATG TCT AAT GTA AAA AAT GTG TCA CAA ACA AAT	288
Asp Lys Glu Leu Thr Met Ser Asn Val Lys Asn Val Ser Gln Thr Asn	
85 90 95	
TTC AAA AGT CTT TTA AGA AAT CTT GGT GTT TCA GAG AAT ATA TTC CTT	336
Phe Lys Ser Leu Leu Arg Asn Leu Gly Val Ser Glu Asn Ile Phe Leu	
100 105 110	
AAA GAA AAT AAA TTA AAT AAG GAA GGG AAA TTA ATT GAA CAC ATA ATA	384
Lys Glu Asn Lys Leu Asn Lys Glu Gly Lys Leu Ile Glu His Ile Ile	
115 120 125	
AAT GAT GAT GAC GAT AAA AAA AAA TAT ATT AAA GGG CAA GAC GAA AAC	432
Asn Asp Asp Asp Asp Lys Lys Lys Tyr Ile Lys Gly Gln Asp Glu Asn	
130 135 140	
AGA CAA GAA GAT CTT GAA GAA AAA GCA GCT AAA GAA AAG TTA CAG GGG	480
Arg Gln Glu Asp Leu Glu Glu Lys Ala Ala Lys Glu Lys Leu Gln Gly	

145	150	155	160	
CAA CAA AGC GAT TCA Gln Gln Ser Asp Ser 165	GAA CAA GAG AGA CGT Glu Gln Glu Arg Arg 170	GCT AAA GAA AAG TTG Ala Lys Glu Lys Leu 175	CAA	528
GAA CAA CAA AGC GAT TTA Glu Gln Gln Ser Asp Leu 180	GAA CAA GAG AGA CTT Glu Gln Glu Arg Leu 185	GCT AAA GAA AAG TTG Ala Lys Glu Lys Leu 190		576
CAA GAA CAA CAA AGC GAT TTA Gln Glu Gln Gln Ser Asp Leu 195	GAA CAA GAG AGA CGT Glu Gln Glu Arg Arg 200	GCT AAA GAA AAG Ala Lys Glu Lys 205		624
TTG CAA GAA CAA CAA AGC GAT TTA Leu Gln Glu Gln Gln Ser Asp Leu 210	GAA CAA GAG AGA CTT Glu Gln Glu Arg Leu 215	GCT AAA GAA Ala Lys Glu 220		672
AAG TTG CAA GAA CAA CAA AGC GAT TTA Lys Leu Gln Glu Gln Gln Ser Asp Leu 225	GAA CAA GAG AGA CGT Glu Gln Glu Arg Arg 230	GCT AAA Ala Lys 235		720
GAA CAA GAA CAA CAA AGC GAT TTA Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu 240	GAA CAA GAG AGA CGT Glu Gln Glu Arg Arg 245	GCT AAA Ala Lys 250		768
AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu 255	GAA CAA GAG AGA CTT Glu Gln Glu Arg Leu 260	GCT AAA Ala Lys 265		816
GCT AAA GAA AAG TTG CAA GAG CAG CAA AGC GAT TTA Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu 270	GAA CAA GAG AGA CGT Glu Gln Glu Arg Arg 275	GCT AAA Ala Lys 280		864
CTT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu 285	GAA CAA GAG AGA CGT Glu Gln Glu Arg Arg 290	GCT AAA Ala Lys 295		912
AGA CGT GCT AAA GAA AGG TTG CAA GAA CAA CAA AGC GAT TTA Arg Arg Ala Lys Glu Arg Leu Gln Glu Gln Gln Ser Asp Leu 300	GAA CAA GAG AGA CGT Glu Gln Glu Arg Arg 305	GCT AAA Ala Lys 310		954

(2) INFORMATION FOR SEQ ID NO:38:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1493 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

CAAGAACAAC AAAGCGATCT AGAACAAGAG AGACGTGCTA AAGAAAAGTT GCAAGAACAA	60
CAAAGCGATT TAGAACAAGA TAGACTTGCT AAAGAAAAGT TACAAGAGCA GCAAAGCGAT	120
TTAGAACAAG AGAGACTTGC TAAGAAAAGT TGCAAGAACA ACAAAGCGAT CTAGAACAAG	180
AGAGACGTGC TAAAGAAAAG TTGCAAGAAC AACAAAGCGA TTTAGAACAA GAGAGACGTG	240
CTAAAGAAAA GTTGCAAGAA CAACAAAGCG ATTTAGAACA AGATAGACTT GCTAAAGAAA	300
AGTTACAAGA GCAGCAAAGC GATTTAGAAC AAGAGAGACG TGCTAAAGAA AAGTTGCAAG	360
AACAACAAAG CGATTTAGAA CAAGAGAGAC GTGCTAAGAA AAGTTGCAAG AACAACAAAG	420
CGATTTAGAA CAAGAGAGAC TTGCTAAAGA AAAGTTGCAA GAACAACAAA GCGATTTAGA	480
ACAAGAGAGA CGTGCTAAAG AAAAGTTGCA AGAACAACAA AGCGATTTAG AACAAGAGAG	540
ACGTGCTAAG AAAAGTTGCA AGAACAACAA AGCGATTTAG AACAAGAGAG ACGTGCTAAA	600
GAAAAGTTGC AAGAGCAGCA AAGAGATTTA GAACAAAGGA AGGCTGATAC GAAAAAAAT	660
TTAGAAAGAA AAAAGGAACA TGGAGATATA TTAGCAGAGG ATTTATATGG TCGTTTAGAA	720
ATAGCAGCTA TAGAACTTCC ATCAGAAAAT GAACGTGGAT ATTATATACC ACATCAATCT	780
TCTTTACCTC AGGACAACAG AGGGAATAGT AGAGATTCCA AGGAAATATC TATAATAGAA	840
AAAACAAATA GAGAATCTAT TACAACAAAT GTTGAAGGAC GAAGGGATAT ACATAAAGGA	900
CATCTTGAAG AAAAGAAAGA TGGTTCAATA AAACCAGAAC AAAAAGAAGA TAAATCTGCT	960
GACATACAAA ATCATAACATT AGAGACAGTA AATATTTCTG ATGTTAATGA TTTTCAAATA	1020
AGTAAGTATG AGGATGAAAT AAGTGCTGAA TATGACGATT CATTAATAGA TGAAGAAGAA	1080
GATGATGAAG ACTTAGACGA ATTTAAGCCT ATTGTGCAAT ATGACAATTT CCAAGATGAA	1140
GAAACATAG GAATTTATAA AGAACTAGAA GATTTGATAG AGAAAAATGA AAATTTAGAT	1200
GATTTAGATG AAGGAATAGA AAAATCATCA GAAGAATTAT CTGAAGAAAA AATAAAAAAA	1260
GGAAAGAAAT ATGAAAAAAC AAAGGATAAT AATTTTAAAC CAAATGATAA AAGTTTGTAT	1320
GATGAGCATA TTAAAAAATA TAAAAATGAT AAGCAGGTTA ATAAGGAAAA GGAAAAATTC	1380
ATAAAATCAT TGTTTCATAT ATTTGACGGA GACAATGAAA TTTTACAGAT CGTGGATGAG	1440
TTATCTGAAG ATATAACTAA ATATTTTATG AAACATAAAA AGGTTATATA TTT	1493

(2) INFORMATION FOR SEQ ID NO:39:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 12 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

CAAGAACAAC AA

12

(2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

GGTTATATAT TT

12

(2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1482 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..1482

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT AAA GAA AAG
 Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys
 1 5 10 15

48

TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA CTT GCT AAA GAA Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu 20 25 30	96
AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG AGA CTT GCT AAA Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys 35 40 45	144
GAA AAG TTG CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala 50 55 60	192
AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg 65 70 75 80	240
GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg 85 90 95	288
CTT GCT AAA GAA AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu 100 105 110	336
AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln 115 120 125	384
GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu 130 135 140	432
CAA GAG AGA CTT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA Gln Glu Arg Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu 145 150 155 160	480
GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp 165 170 175	528
TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser 180 185 190	576
GAT TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAG CAG CAA Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln 195 200 205	624
AGA GAT TTA GAA CAA AGG AAG GCT GAT ACG AAA AAA AAT TTA GAA AGA Arg Asp Leu Glu Gln Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg 210 215 220	672
AAA AAG GAA CAT GGA GAT ATA TTA GCA GAG GAT TTA TAT GGT CGT TTA Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu 225 230 235 240	720

GAA ATA CCA GCT ATA GAA CTT CCA TCA GAA AAT GAA CGT GGA TAT TAT Glu Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr	768
245 250 255	
ATA CCA CAT CAA TCT TCT TTA CCT CAG GAC AAC AGA GGG AAT AGT AGA Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg	816
260 265 270	
GAT TCC AAG GAA ATA TCT ATA ATA GAA AAA ACA AAT AGA GAA TCT ATT Asp Ser Lys Glu Ile Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile	864
275 280 285	
ACA ACA AAT GTT GAA GGA CGA AGG GAT ATA CAT AAA GGA CAT CTT GAA Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His Lys Gly His Leu Glu	912
290 295 300	
GAA AAG AAA GAT GGT TCA ATA AAA CCA GAA CAA AAA GAA GAT AAA TCT Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser	960
305 310 315 320	
GCT GAC ATA CAA AAT CAT ACA TTA GAG ACA GTA AAT ATT TCT GAT GTT Ala Asp Ile Gln Asn His Thr Leu Glu Thr Val Asn Ile Ser Asp Val	1008
325 330 335	
AAT GAT TTT CAA ATA AGT AAG TAT GAG GAT GAA ATA AGT GCT GAA TAT Asn Asp Phe Gln Ile Ser Lys Tyr Glu Asp Glu Ile Ser Ala Glu Tyr	1056
340 345 350	
GAC GAT TCA TTA ATA GAT GAA GAA GAA GAT GAT GAA GAC TTA GAC GAA Asp Asp Ser Leu Ile Asp Glu Glu Glu Asp Asp Glu Asp Leu Asp Glu	1104
355 360 365	
TTT AAG CCT ATT GTG CAA TAT GAC AAT TTC CAA GAT GAA GAA AAC ATA Phe Lys Pro Ile Val Gln Tyr Asp Asn Phe Gln Asp Glu Glu Asn Ile	1152
370 375 380	
GGA ATT TAT AAA GAA CTA GAA GAT TTG ATA GAG AAA AAT GAA AAT TTA Gly Ile Tyr Lys Glu Leu Glu Asp Leu Ile Glu Lys Asn Glu Asn Leu	1200
385 390 395 400	
GAT GAT TTA GAT GAA GGA ATA GAA AAA TCA TCA GAA GAA TTA TCT GAA Asp Asp Leu Asp Glu Gly Ile Glu Lys Ser Ser Glu Glu Leu Ser Glu	1248
405 410 415	
GAA AAA ATA AAA AAA GGA AAG AAA TAT GAA AAA ACA AAG GAT AAT AAT Glu Lys Ile Lys Lys Gly Lys Lys Tyr Glu Lys Thr Lys Asp Asn Asn	1296
420 425 430	
TTT AAA CCA AAT GAT AAA AGT TTG TAT GAT GAG CAT ATT AAA AAA TAT Phe Lys Pro Asn Asp Lys Ser Leu Tyr Asp Glu His Ile Lys Lys Tyr	1344
435 440 445	
AAA AAT GAT AAG CAG GTT AAT AAG GAA AAG GAA AAA TTC ATA AAA TCA Lys Asn Asp Lys Gln Val Asn Lys Glu Lys Glu Lys Phe Ile Lys Ser	1392
450 455 460	

TTG TTT CAT ATA TTT GAC GGA GAC AAT GAA ATT TTA CAG ATC GTG GAT 1440
 Leu Phe His Ile Phe Asp Gly Asp Asn Glu Ile Leu Gln Ile Val Asp
 465 470 475 480

GAG TTA TCT GAA GAT ATA ACT AAA TAT TTT ATG AAA CTA TAA 1482
 Glu Leu Ser Glu Asp Ile Thr Lys Tyr Phe Met Lys Leu
 485 490

(2) INFORMATION FOR SEQ ID NO:42:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

- (A) NAME/KEY: CDS
 (B) LOCATION: 1..12

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

AAG GTT ATA TAT
 Lys Val Ile Tyr

12

(2) INFORMATION FOR SEQ ID NO:43:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

CAAGAACAAC AA

12

(2) INFORMATION FOR SEQ ID NO:44:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

ATGAAACTAT AA

12

(2) INFORMATION FOR SEQ ID NO:45:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1482 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

(A) NAME/KEY: CDS

(B) LOCATION: 1..1482

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT AAA GAA AAG 48
Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys
1 5 10 15

TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA CTT GCT AAA GAA 96
Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu
20 25 30

AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG AGA CTT GCT AAA 144
Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys
35 40 45

GAA AAG TTG CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT 192
Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala
50 55 60

AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT 240
Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg
65 70 75 80

GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA 288
Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg
85 90 95

CTT GCT AAA GAA AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG Leu Ala Lys Glu Lys Leu Gln Glu Gln Ser Asp Leu Glu Gln Glu 100 105 110	336
AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln 115 120 125	384
GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu 130 135 140	432
CAA GAG AGA CTT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA Gln Glu Arg Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu 145 150 155 160	480
GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp 165 170 175	528
TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser 180 185 190	576
GAT TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAG CAG CAA Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln 195 200 205	624
AGA GAT TTA GAA CAA AGG AAG GCT GAT ACG AAA AAA AAT TTA GAA AGA Arg Asp Leu Glu Gln Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg 210 215 220	672
AAA AAG GAA CAT GGA GAT ATA TTA GCA GAG GAT TTA TAT GGT CGT TTA Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu 225 230 235 240	720
GAA ATA CCA GCT ATA GAA CTT CCA TCA GAA AAT GAA CGT GGA TAT TAT Glu Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr 245 250 255	768
ATA CCA CAT CAA TCT TCT TTA CCT CAG GAC AAC AGA GGG AAT AGT AGA Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg 260 265 270	816
GAT TCC AAG GAA ATG TCT ATA ATA GAA AAA ACA AAT AGA GAA TCT ATT Asp Ser Lys Glu Met Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile 275 280 285	864
ACA ACA AAT GTT GAA GGA CGA AGG GAT ATA CAT AAA GGA CAT CTT GAA Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His Lys Gly His Leu Glu 290 295 300	912
GAA AAG AAA GAT GGT TCA ATA AAA CCA GAA CAA AAA GAA GAT AAA TCT Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser 305 310 315 320	960

GCT GAC ATA CAA AAT CAT ACA TTA GAG ACA GTA AAT ATT TCT GAT GTT Ala Asp Ile Gln Asn His Thr Leu Glu Thr Val Asn Ile Ser Asp Val 325 330 335	1008
AAT GAT TTT CAA ATA AGT AAG TAT GAG GAT GAA ATA AGT GCT GAA TAT Asn Asp Phe Gln Ile Ser Lys Tyr Glu Asp Glu Ile Ser Ala Glu Tyr 340 345 350	1056
GAC GAT TCA TTA ATA GAT GAA GAA GAA GAT GAT GAA GAC TTA GAC GAA Asp Asp Ser Leu Ile Asp Glu Glu Glu Asp Asp Glu Asp Leu Asp Glu 355 360 365	1104
TTT AAG CCT ATT GTG CAA TAT GAC AAT TTC CAA GAT GAA GAA AAC ATA Phe Lys Pro Ile Val Gln Tyr Asp Asn Phe Gln Asp Glu Glu Asn Ile 370 375 380	1152
GGA ATT TAT AAA GAA CTA GAA GAT TTG ATA GAG AAA AAT GAA AAT TTA Gly Ile Tyr Lys Glu Leu Glu Asp Leu Ile Glu Lys Asn Glu Asn Leu 385 390 395 400	1200
GAT GAT TTA GAT GAA GGA ATA GAA AAA TCA TCA GAA GAA TTA TCT GAA Asp Asp Leu Asp Glu Gly Ile Glu Lys Ser Ser Glu Glu Leu Ser Glu 405 410 415	1248
GAA AAA ATA AAA AAA GGA AAG AAA TAT GAA AAA ACA AAG GAT AAT AAT Glu Lys Ile Lys Lys Gly Lys Lys Tyr Glu Lys Thr Lys Asp Asn Asn 420 425 430	1296
TTT AAA CCA AAT GAT AAA AGT TTG TAT GAT GAG CAT ATT AAA AAA TAT Phe Lys Pro Asn Asp Lys Ser Leu Tyr Asp Glu His Ile Lys Lys Tyr 435 440 445	1344
AAA AAT GAT AAG CAG GTT AAT AAG GAA AAG GAA AAA TTC ATA AAA TCA Lys Asn Asp Lys Gln Val Asn Lys Glu Lys Glu Lys Phe Ile Lys Ser 450 455 460	1392
TTG TTT CAT ATA TTT GAC GGA GAC AAT GAA ATT TTA CAG ATC GTG GAT Leu Phe His Ile Phe Asp Gly Asp Asn Glu Ile Leu Gln Ile Val Asp 465 470 475 480	1440
GAG TTA TCT GAA GAT ATA ACT AAA TAT TTT ATG AAA CTA TAA Glu Leu Ser Glu Asp Ile Thr Lys Tyr Phe Met Lys Leu 485 490	1482

(2) INFORMATION FOR SEQ ID NO:46:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

- (A) NAME/KEY: CDS

(B) LOCATION: 1..12

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

AAG GTT ATA TAT
Lys-Val Ile Tyr

1

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